



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,398	09/30/2003	Si-Hyun Song	041993-5353	3749

9629 7590 06/02/2005  
MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER

ADAMS, GREGORY W

ART UNIT PAPER NUMBER

3652

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/673,398

Applicant(s)

SONG, SI-HYUN

Examiner

Gregory W. Adams

Art Unit

3652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy was filed on October 10, 2002.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- and 14*
2. Claims 1, 4-6, 10<sub>1</sub> are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, line 7, it is unclear what a "first width direction" is. With respect to line 4, it is unclear how a slot which is "an opening, gap, groove, or slit" can protrude. Broadly construed, slots define a space in an object or structure, but applicant appears here to be defining it without the object. It is suggested to provide some structure such that one skilled in the art may know where a slot is protruding from/to. See also claims 10 & 14.

With respect to claims 4-6, it is unclear whether applicant is claiming a cassette device or a cassette device in combination with thin film transistor arrays and color filters.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

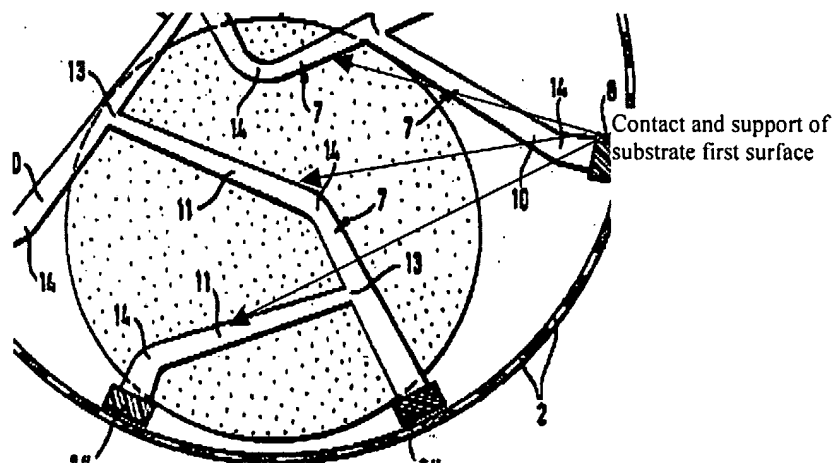
Art Unit: 3652

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 14 & 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Stadler et al. (US 5,236,548).

With respect to claims 1 & 14, referring to FIGS. 1-2 Stadler et al. disclose a cassette device 1, frame 5, and support bars 8, 10, 12, 13, 14 connected to slots 9, wherein supporting bars 8, 10, 12, 13, 14 contact and support a substrate first surface along a first width direction. See FIG. 2 below.



With respect to claim 2, referring to FIGS. 1-2 Stadler et al. disclose support bars 8 of acetal resin. Col. 5, Ins. 39-46.

With respect to claim 3, referring to FIGS. 1-2 Stadler et al. disclose support bars 8 having a contact surface.

With respect to claim 17, referring to FIGS. 1-2 Stadler et al. disclose supporting bars 8, 10, 12, 13, 14 at end portions of slots 9.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-13, 15-16 & 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. (US 5,236,548) in view of Inoue (US 6,769,948).

With respect to claim 4, Stadler et al. '548 do not disclose thin film transistor arrays or color filters. Referring to FIGS. 1A-2 Inoue disclose a cassette device, first substrate 1 having thin film transistor arrays, and second substrate 2 having color filters as a process step for cassette devices handling substrates. Col. 1, Ins. 24-30. Inoue teaches that substrate carrying cassette devices include thin film transistors arrays and color filters to be processed through a production system. Col. 2, In 17-18. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include substrates comprising thin film transistor arrays and color filters in the cassette device of Stadler et al., as per the teachings of Inoue, such that substrates within cassette devices include thin film transistors arrays and color filters to be processed through a production system. It is noted that in an apparatus claim, the object worked on by the claimed apparatus does not limit or in any way modify the invention.

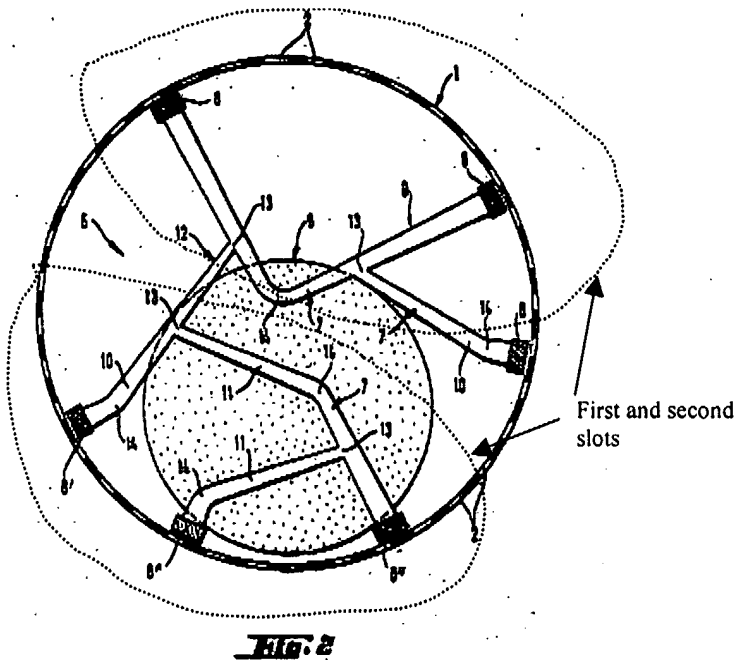
With respect to claim 5, Stadler et al. '548 do not disclose liquid crystal layers between substrates. Referring to FIGS. 1A-2 Inoue disclose a liquid crystal layer

Art Unit: 3652

between first substrate 1 and second substrate 2 as a production step for substrates carried by cassette devices. Col. 1, Ins. 24-30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include liquid crystal layer between substrates carried within the cassette device of Stadler et al., as per the teachings of Inoue, such that a liquid crystal layer is between first substrate 1 and second substrate 2 as a production step for substrates carried by cassette devices.

With respect to claim 6, Stadler et al. '548 do not disclose application of liquid crystal layer to substrates. Referring to FIGS. 1A-2 Inoue disclose application of liquid crystal layer to substrate 1,2 as a production step for substrates carried by cassette devices. Col. 1, Ins. 24-30. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a liquid crystal layer to substrates carried within the cassette device of Stadler et al., as per the teachings of Inoue, such that a liquid crystal layer is between first substrate 1 and second substrate 2 as a production step for substrates carried by cassette devices.

With respect to claims 7-8, Stadler et al. disclose a first set of slots extending long a first plane and a second set of slots extending along a second plane. See FIG. 2 below.

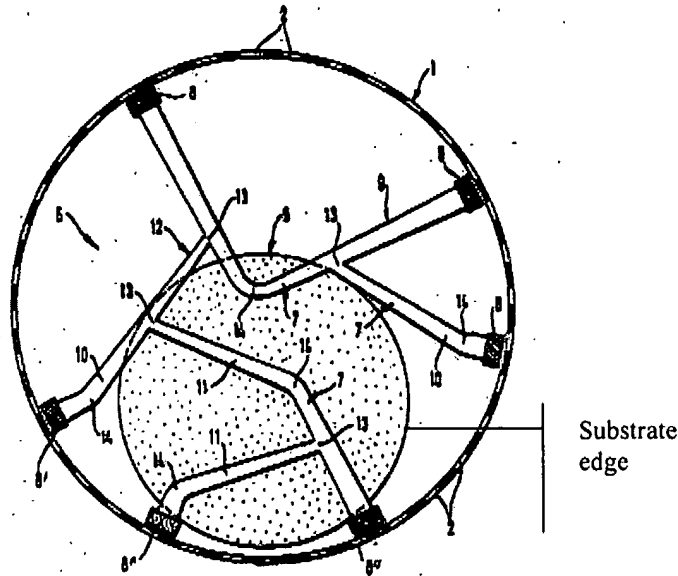


With respect to claim 9, referring to FIGS. 1-2 Stadler et al. discloses the claimed invention as recited in claims 1-3 above except for a robot arm. It would have been an obvious to one having ordinary skill in the art at the time the invention was made to add a robot arm since it was known in the art that substrate processing devices move substrate between processing devices with robot arms.

With respect to claim 10, referring to FIGS. 1-2 Stadler et al. disclose a cassette device 1, frame 5, and support bars 8 connected to slots 9, wherein supporting bars 8, 10, 12, 13, 14 contact and extend along a first width direction. See FIG. 2 reproduced under claim 1 rejection above. As noted under 112, second paragraph, rejections above with multiple widths available depending on a reference point, Stadler et al. disclose a first width as shown above. Claim may be gained by providing structure as to where the width is located, and where it extends to/from.

Art Unit: 3652

With respect to claim 11, Stadler et al. disclose supporting bars 8, 10, 12, 13, 14 which extend past edge portions of the substrates along a first width direction.

**FIG. 2**

With respect to claim 12, Stadler et al. discloses varying numbers of supporting bars 8, 10, 12, 13, 14 on size of substrates. Col. 3, Ins. 20-45.

With respect to claim 13, Stadler et al. discloses the claimed invention except for deformation prevention. Stadler et al. disclose producing electronic devices with minimal contact surface. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support bars of Stadler et al. to maintain minimal deflection, as per the teachings of Stadler et al., to manufacture electronic device using minimal contact surface.

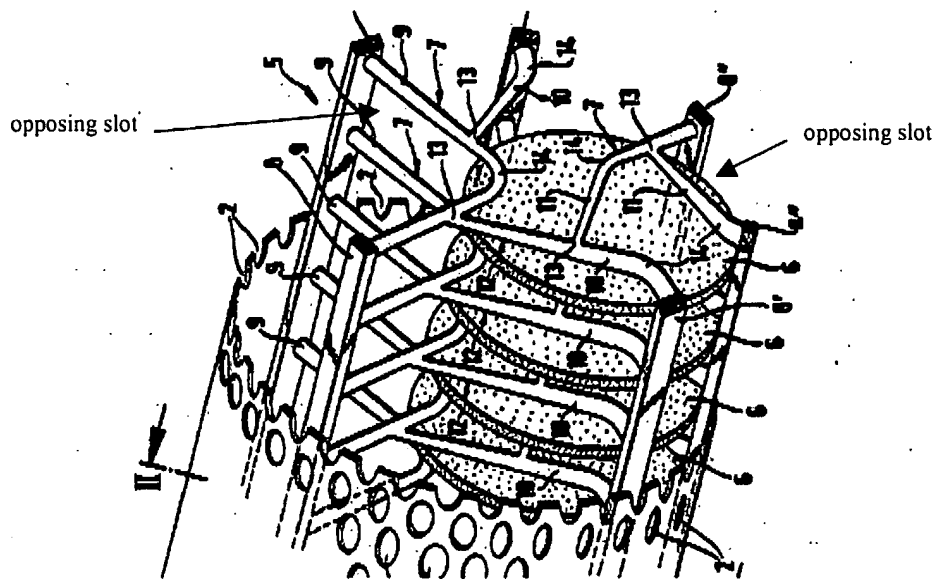
With respect to claim 15, Stadler et al. discloses the claimed invention except for a rectangular frame. Stadler et al. discloses processing other wafer shapes. Therefore, it would have been obvious to one having ordinary skill in the art at the time the



Art Unit: 3652

invention was made to modify the frame for rectangular shape, as per the teachings of Stadler et al., such that all different sizes of wafers may be processed.

With respect to claim 16, referring to FIGS. 1-2 Stadler et al. disclose slots 9 protruding from opposite sides. See FIG. 1 below.



With respect to claim 18, referring to FIGS. 1-2 Stadler et al. disclose a cassette device 1, frame 5, and support bars 8, 10, 12, 13, 14 connected to slots 9, wherein supporting bars 8, 10, 12, 13, 14 contact and support a substrate first surface along a first width direction. Stadler et al. discloses the claimed invention except for a rectangular frame. Stadler et al. discloses processing other wafer shapes. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the frame for rectangular shape, as per the teachings of Stadler et al., such that all different sizes of wafers may be processed.

With respect to claim 19, referring to FIGS. 1-2 Stadler et al. disclose slots 9 protruding from opposite sides.

***Response to Arguments***

7. Applicant's arguments filed March 31, 2005 have been fully considered but they are not persuasive.

Applicant first argues that Stadler et al. circular cassette does not disclose a first width direction. Depending on a reference point which applicant does not provide Stadler et al. disclose a "first width direction" as viewed from each side.

Applicant next argues that Stadler et al. supporting bars, at least two, do not contact and support a wafer. As noted above under 102(b) rejection, Stadler et al. discloses support bars 8, as well as supporting bars 10 (or 7), 12, 13, 14. Col. 3, lns. 25-69.

Applicant next argues that Stadler et al. do not disclose contacting a wafer. Stadler discloses contact by minimizing support bars 10 and 9 "to reduce the number of contact points with wafer surfaces." Col. 3, lns. 55-69. And as noted above, its unclear where applicants first width direction is located because there is no structure to guide, or spatial relationship to inform. Broadly construed, Stadler et al. discloses a first width direction because Stadler et al. define holding a substrate on support bars, support bars which extend from parallel opposite sides of a frame.

Applicant next argues that Inoue does not remedy Stadler et al. deficiencies. As noted above under 112, second paragraph, rejections Stadler et al. disclose an apparatus which performs similarly to applicants because Stadler et al. read on all claims and limitations, and subsequently would perform similarly on substrate.

***Conclusion***

Art Unit: 3652

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory W. Adams whose telephone number is (571) 272-8101. The examiner can normally be reached on M-Th, 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on (571) 272-6928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3652

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GWA



EILEEN D. LILLIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600